



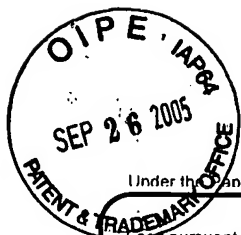
TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/614,755
	Filing Date	July 7, 2003
	First Named Inventor	Kevin McQuistian
	Art Unit	3617
	Examiner Name	Frantz F. Jules
Total Number of Pages in This Submission	Attorney Docket Number	283359-00368

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form	<input checked="" type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance communication to Group
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<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
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<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm or Individual name	David C. Jenkins Eckert Seamans Cherin & Mellott, LLC	
Signature		
Date	September 19, 2005	

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Signature		Date	September 19, 2005

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FEE TRANSMITTAL

For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 500.00)

Complete if Known

Application Number	10/614,755
Filing Date	07/07/2003
First Named Inventor	Kevin McQuistian
Examiner Name	Frantz F. Jules
Art Unit	3617
Attorney Docket No.	283359-00368

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 02-2556 Deposit Account Name: Eckert Seamans Cherin & Mellott

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FEE CALCULATION**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims **Extra Claims** **Fee (\$)** **Fee Paid (\$)** **Multiple Dependent Claims**

_____ - 20 or HP = _____ x _____ = _____ **Fee (\$)** **Fee Paid (\$)**

HP = highest number of total claims paid for, if greater than 20

Indep. Claims **Extra Claims** **Fee (\$)** **Fee Paid (\$)**

_____ - 3 or HP = _____ x _____ = _____

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
_____ - 100 = _____	_____ / 50 = _____	(round up to a whole number) x _____	= _____	

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other: Appeal Brief

500.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 42,691	Telephone 412/566-1253
Name (Print/Type)	David C. Jenkins		Date September 19, 2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Examiner: Frantz F. Jules

Group Art Unit: 3617

In re application of:

Kevin McQuistian et al.

Serial No. : 10/614,755

Filed: July 7, 2003

HOLLOW TIE RAILROAD
SWITCHING ASSEMBLY

Attorney Docket No. 283359-00368

APPELLANTS' BRIEF ON APPEAL

September 16, 2005

Commissioner for Patents
MAIL STOP APPEAL BRIEF - PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is an Appeal from the decision of the Examiner, dated May 27, 2005, rejecting Claims 1 and 5-10 of the above-identified application. The claims are set forth in Appendix 1, which is attached hereto. Due to the specific nature of the issues involved in this Appeal, an Oral Hearing is not deemed necessary and is not requested.

Please charge the amount of \$500.00 to our credit card as indicated on the attached Credit Card Payment Form to cover the filing fee of this Appeal. Please charge any additional fees or credit any overpayment to Eckert Seaman's Deposit Account No. 02-2556. A duplicate copy of this sheet is enclosed.

Real Party In Interest

The real party in interest is Union Switch & Signal, Inc. An Assignment transferring all right, title and interest from the inventor to Union Switch & Signal, Inc. was recorded by the Assignment Branch of the United States Patent and Trademark Office on September 27, 2004.

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Related Appeals and Interferences

There are no other appeals or interferences known to Appellants or to Appellants' legal representative which will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

Status of the Claims

Claims 1-18 remain pending in this application.

Claims 1 and 5-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *McQuistian* (U.S. Patent No. 6,648,276) in view of *Hartung* (U.S. Patent No. 4,637,579).

Claims 7-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *McQuistian* in view of *Hartung and Schwiede* (US 20020060273 A1).

Claims 2-4 and 11-18 are objected to as being dependent upon a rejected base claim.

The rejection of Claims 1 and 5-10 are addressed in this Appeal.

Status of the Amendments

There are currently no amendments to the pending claims. The claims as they stand on Appeal are contained in the Appendix 1 to this Brief.

Summary of the Claimed Subject Matter

The present invention provides switching assembly for a railroad switch (see, page 2, lines 41-56). The switching assembly 32 in accordance with the present invention includes a pair of hollow ties 36, 44, a pair of supports 40, 48, and a linkage 52 (page 6, lines 160-182). The linkage 52 advantageously extends generally through the hollow ties 36, 44, whereby the cribs 336 between adjacent hollow and/or rail ties are generally free of linkage components, and the ballast in the cribs 336 can be compacted with known automated machinery (page 13, lines 388-399). The linkage 52 includes a number of lugs 72, 76, 80, 84 and a number of rods 88, 92, 100, 104, with the rods each being formed from standard bar stock and threaded, with the linkage configuration avoiding the need to custom bend any of the rods (page 7, lines 191-198 and page 11, lines 318-325). The hollow ties 36, 44 are formed from a generally available standard box section steel, as are the supports 40, 48 (page 12, lines 361-366). Each hollow tie 36, 44, including its support 40, 48, is separate from

the other hollow tie 36, 44 with its associated support 40, 48, whereby the spacing between the hollow ties 36, 44 can be varied in accordance with the pitch of the other rail ties of the railroad switch (page 6, lines 176-182). Each hollow tie 36, 44 can include a heater 272, 308 within the interior thereof to overcome the effects of freezing (page 12, lines 342-353).

The claims argued in this appeal include:

1. A linkage (52) structured to operatively extend between a railroad switch machine (4) and a pair of movable rails (20, 24) of a railroad switch (4), the linkage (52) comprising:

- a pair of first rail lugs (72, 76);

- a pair of second rail lugs (80, 84);

- one of the first rail lugs (72, 76) and one of the second rail lugs (80, 84) being structured to be operatively connected with one of the movable rails (20, 24), the other of the first rail lugs (72, 76) and the other of the second rail lugs (80, 84) being structured to be operatively connected with the other of the movable rails (20, 24);

- an operating spread rod (88) adjustably extending between the first rail lugs (72, 76);

- an operating lug (96) structured to be connected with an operating rod (60) of the railroad switch machine (4);

- an operating connecting rod (92) adjustably extending between the one of the first rail lugs (72, 76) and the operating lug (96);

- a lock spread rod (100) adjustably extending between the second rail lugs (80, 84);

- a lock lug (108) structured to be connected with a lock rod (64) of the railroad switch machine (4);

- a lock connecting rod (104) adjustably extending between the one of the second rail lugs (80, 84) and the lock lug (108);

- a point detector lug (116) structured to be connected with a point detector rod (68) of the railroad switch machine (4);

- a point detector connecting rod (112) adjustably extending between the one of the second rail lugs (80, 84) and the point detector lug (116);

the operating spread rod (88), the operating connecting rod (92), the lock spread rod (100), the lock connecting rod (104), and the point detector connecting rod (112) each being substantially straight and at least partially threaded.

5. The linkage (52) as set forth in Claim 1, in which the operating spread rod (88) and the operating connecting rod (92) are each adjustable independently of one another with respect to the one of the first rail lugs (72, 76).

6. The linkage (52) as set forth in Claim 5, in which the lock spread rod (100), the lock connecting rod (104), and the point detector connecting rod (112) are each adjustable independently of one another with respect to the one of the second rail lugs (80, 84).

7. A switching assembly (32) structured to be a part of a railroad switch (4) having a switch machine (28), a pair of stock rails (12, 16), a pair of movable rails (20,24), and a plurality of rail ties (8), the switch machine (28) including a frame (56), an operating rod (60), a lock rod (64), and a point detector rod (68), the stock rails (12, 16) and the movable rails (20, 24) being disposed on the rail ties, the rail ties (8) generally being spaced from one another at a given pitch, the switching assembly (32) comprising:

a first hollow tie (36);

a first support (40) mounted to the first hollow tie (36);

a second hollow tie (44);

a second support (48) mounted to the second hollow tie (44);

the first and second hollow ties (36, 44) being positionable at the given pitch with respect to one another and being structured to be positionable at the given pitch with respect to the rail ties (8);

the first and second hollow ties (36, 44) being structured to have the pair of stock rails (12, 16) disposed thereon

the first and second supports (40, 48) being structured to have the switch machine (28) mounted thereon;

a linkage (52) structured to operatively extend between the railroad switch machine (4) and the pair of movable rails (20, 24) of the railroad switch (4);

the linkage (52) including a pair of first rail lugs (72, 76), a pair of second rail lugs (80, 84), an operating spread rod (88), an operating lug (96), an operating connecting rod (92), a lock spread rod (100), a lock lug (108), a lock connecting rod (104), a point detector lug (116), and a point detector connecting rod (112);

one of the first rail lugs (72, 76) and one of the second rail lugs (80, 84) being structured to be operatively connected with one of the movable rails (20, 24), the other of the first rail lugs (72, 6) and the other of the second rail lugs (80, 84) being structured to be operatively connected with the other of the movable rails (20, 24);

the operating spread rod (88) adjustably extending between the first rail lugs (72, 76);

the operating lug (96) being structured to be connected with the operating rod (60) of the railroad switch machine (28);

the operating connecting rod (92) adjustably extending between the one of the first rail lugs (72, 76) and the operating lug (96);

the lock spread rod (100) adjustably extending between the second rail lugs (80, 84);

the lock lug (108) being structured to be connected with the lock rod (64) of the railroad switch machine (28);

the lock connecting rod (104) adjustably extending between the one of the second rail lugs (80, 84) and the lock lug (108);

the point detector lug (116) being structured to be connected with the point detector rod (68) of the railroad switch machine (28);

the point detector connecting rod (112) adjustably extending between the one of the second rail lugs (80, 84) and the point detector lug (116);

the operating connecting rod (92) extending generally through the first hollow tie (36);

the lock spread rod (100), the lock connecting rod (104), and the point detector connecting rod (112) extending generally through the second hollow tie (44); and

the operating spread rod (88), the operating connecting rod (92), the lock spread rod (100), the lock connecting rod (104), and the point detector connecting rod (112) each being substantially straight and at least partially threaded.

8. The switching assembly (32) as set forth in Claim 7, in which the first and second hollow ties (36, 44) each include a bottom web (312), a top web (316), and a pair of side webs (320, 324), with the top web (316) and the bottom web (312) each extending between and being connected with both of the side webs (320, 324).

9. The switching assembly (32) as set forth in Claim 8, in which the first and second hollow ties (36, 44) each include at least a first access hole (252) formed in the top web (316), at least a portion of at least one of the first rail lugs (72, 76) extending through the at least first access hole (252) formed in the first hollow tie (36), at least a portion of at least one of the second rail lugs (80, 84) extending through the at least first access hole (252) formed in the second hollow tie (44).

10. The switching assembly (32) as set forth in Claim 8, in which the first and second hollow ties (36, 44) each include an interior; the operating lug (96) extending between the interior of the first hollow tie (36) and the exterior thereof; the lock lug (108) and the point detector lug (116) each extending between the interior of the second hollow tie (44) and the exterior thereof.

Grounds of Rejection to be Reviewed on Appeal

Claims 1 and 5-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *McQuistian* (U.S. Patent No. 4,637,579) in view of *Hartung* (U.S. Patent No. 4,637,579).

Claims 7-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *McQuistian* in view of *Hartung and Schwiede* (US 20020060273 A1).

The rejection of Claims 1 and 5-10 are addressed in this Appeal.

Argument

Claims 1 and 5-6; Rejected under 35 U.S.C. § 103(a)

Claims 1 and 5-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *McQuistian* (U.S. Patent No. 6,648,276) in view of *Hartung* (U.S. Patent No. 4,637,579). The Examiner has taken the position that *McQuistian* discloses all of the elements of Claims 1 and 5-6 but does not disclose a point detector connecting rod that is substantially straight and at least partially threaded. The Examiner has additionally taken the position that *Hartung* provides a teaching of a point detector connecting rod (26) that is substantially straight and at least partially threaded in coupling relationship to a point detector. To the contrary, however, it is respectfully submitted that *Hartung* does not disclose, teach, or suggest a point detector connecting rod that is substantially straight and at least partially threaded, as has been asserted by the Examiner.

Appellants have provided herewith Exhibit A, which is Fig. 1 of *Hartung* with some additional markings in red. It is conceded that the connector rod (46) of the detector rod assembly (26) and the lock rod (40) of the lock rod assembly (24) both *appear* in Fig. 1 to be substantially straight in that plane. It is noted that Fig. 1 includes a longitudinal depiction of the connector rod (46) and the lock rod (40), and it is respectfully submitted that such a view, by itself, cannot constitute a teaching that a longitudinal member is substantially straight. It is also noted that Fig. 3 is a view from the same perspective as Fig. 1, except including the lock rod (40) and other components in enlarged proportion. Appellants have provided herewith Exhibit B, which are Figs. 3 and 4 of *Hartung* along with supplied red markings. Fig. 4 is a view of the same lock rod (40), but in an orthogonal direction. Fig. 4 clearly shows that the lock rod (40) includes at least a pair of bends formed therein, and such bends are indicated in Fig. 3 through the use of contour lines depicted therein, as is indicated by the red markings in Exhibit B. It is noted that such contour lines in Fig. 3 are not depicted in Fig. 1, likely due to the much smaller depicted size of the lock rod (40) in Fig. 1.

It is submitted that Fig. 1 provides the only depiction of substantially the entirety of the connector rod (46) of the detector connector rod assembly (26) which is urged by the Examiner as being substantially straight and at least partially threaded. Apart from this depiction in Fig. 1, *Hartung* includes no disclosure, teaching, or

suggestion whatsoever that the connector rod (46) of the detector rod assembly (26) is substantially straight. Inasmuch as the plan view of the lock rod (40) of Fig. 3 depicts contour lines that are not depicted in the relatively smaller plan view of Fig. 1, it is submitted that no conclusion regarding the relative straightness of the connector rod (46) of the detector rod assembly (26) can be drawn from its depiction in Fig. 1.

The Examiner has further stated that the Figures 3 and 4 only show “minor bends” and that the “broad terminology of a substantially straight connecting rod does not remove the possibility of minor bends in the rod.” The Appellants agree that the word “substantially” precludes the requirement that the connecting rod be absolutely straight. Appellants suggest, however, that the characteristic of being “substantially straight” relates to the portion of a rod extending along, or adjacent to a common longitudinal axis relative to the total length of the rod and not to the degree of any “bends.” For example, the lines in Figures 1 and 2 below represent a rod extending generally horizontally and which includes a vertical portion. That is, the angle of “bends” is ninety degrees. In Figure 1 the vertical portion is approximately one fifth of the total length. In Figure 2, the vertical portion is approximately one twentieth of the total length.



Figure 1

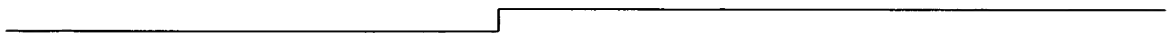


Figure 2

As can be seen, the rod in Figure 2, despite having two right angles, is substantially straight relative to the rod in Figure 1. Rather than examining the entirety of connecting rod disclosed in *Hartung*, the Examiner merely notes that the bends are “minor.” The Examiner, however, fails to account for the fact that Figures 3 and 4 are fragmented views. That is, as seen in Figure 4, there is a break shown in the rod 40A located between reference numbers 24 and 108. The length of the omitted section of the rod is not provided. The Examiner appears to have assumed that this length is relatively short and that the ends of the rod extend generally along, and adjacent to, a common axis. Given the relative size of the nut 108 when Figure 4 is compared to Figure 1, it appears that the Examiner’s assumptions are not supported by the

evidence. As such, *Hartung* cannot be said to disclose a substantially straight connecting rod.

Based on the foregoing, it is thus respectfully urged that Fig. 1 of *Hartung* does not supply a teaching of a point detector connecting rod that is substantially straight as claimed by the Examiner.

It is conceded that the connector rod (46) of the detector rod assembly (26) is at least partially threaded, as can be seen in Fig. 6. It is reiterated, however, that the connector rod (46) of the detector rod assembly (26) is not additionally disclosed, taught, or suggested in *Hartung* as being substantially straight, as is required by Claims 1 and 5-6.

It is noted from Fig. 4 that the pair of bends in the lock rod (40) permit it to pass underneath a rail. The connector rod (46) will similarly need to pass underneath the same rail, but *Hartung* includes no disclosure, teaching, or suggestion as to how the connector rod (46) is formed to extend underneath the rail.

It is noted in Exhibit B that the lug (38) positions the lock rod (40) at a particular drop-down distance from the lock bar (36). Appellants have provided herewith Exhibit C which is Fig. 6 of *Hartung* with supplied red markings. Exhibit C demonstrates that the coupling (B) of Fig. 6 provides to the connector rod (46) another drop-down distance from the detector bar (44). The drop-down distance depicted in Fig. 6 regarding the connector rod (46) can be seen to be substantially smaller than the drop-down distance provided in Fig. 4 regarding the lock rod (40). Inasmuch as the lock rod (40) and the connector rod (46) both must pass underneath the same rail, and since the connector rod (46) is provided only a relatively small drop-down distance (Exhibit C) when compared with the drop-down distance provided to the lock rod (40) (Exhibit B), the connector rod (46) is likely to have bends that are even greater in size than the bends in the lock rod (40) shown in Fig. 4.

Thus, based on the disclosures in the cited references, it can only be concluded that *Hartung* has no disclosure, teaching, or suggestion that the connector rod (46) that is “substantially straight”, and that the other teachings of *Hartung* would strongly suggest that the connector rod (46) rather is bent to enable it to pass underneath a rail. It is thus submitted that *Hartung* does not disclose, teach, or suggest the limitation of a point detector connecting rod that is substantially straight, as is required by Claims 1 and 5-6.

Moreover, *McQuistian* and *Hartung* fail to suggest a combination of the references. As stated in, *In re Geiger*, 815 F.2d 686, 2 USPQ2d 1276 (Fed. Cir. 1987), “obviousness cannot be established by combining teachings of the prior art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting combination” (emphasis added). Put another way, “the mere fact that disclosures or teachings of the prior art can be retrospectively combined for the purpose of evaluating obviousness/nonobviousness issue does not make the combination set forth in the invention obvious, unless the art also suggested the desirability of the combination” *Rite-Hite Corp. v Kelly Co.*, 629 F.Supp. 1042, 231 USPQ 161, aff’d 819 F.2d 1120, 2 USPQ2d 1915 (E.D. Wis. 1986) (emphasis added). Similarly, the court in, *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991), stated that “both the suggestion [to make the claimed apparatus] and the reasonable expectation of success must be found in the prior art, not in the Applicants’ disclosure”. Here, there is no suggestion that the cited references should be combined. As such the combination of these references would not be obvious to one skilled in the art.

Since the references, whether considered individually or in combination, fail to disclose, teach, or suggest all of the elements of Claim 1, the rejection of Claim 1, and, by dependence Claims 5 and 6, on the ground of obviousness is in error.

Claims 7-10; Rejected under 35 U.S.C. § 103(a)

Claims 7-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *McQuistian* in view of *Hartung and Schwiede* (US 20020060273 A1). As set forth above regarding the rejection of Claims 1 and 5-6, it is reiterated that *Hartung* includes no disclosure, teaching, or suggestion of a connector rod (46) that is substantially straight. While the connector rod (46) *appears* from the perspective of Fig. 1 to be substantially straight, it is noted that the connector rod (46) must pass underneath a rail for connection with other structures, and known bends in the lock rod (40) that are depicted in Figs. 3 and 4 of *Hartung* are not similarly depicted in Fig. 1. It is thus submitted that *Hartung* fails to disclose, teach, or suggest a point detector connecting rod that is substantially straight. Further, it is again noted that in order to use a combination of references the Examiner must show where the references include a “teaching, suggestion, or incentive supporting combination.” *In*

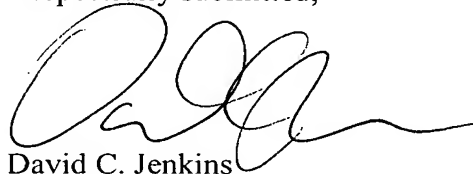
re Geiger. Again, the Examiner has failed to show where these references provide such a teaching, suggestion, or incentive.

Since the references, whether considered individually or in combination, fail to disclose, teach, or suggest all of the elements of Claim 7 and, by dependence, Claims 8-10, the rejection of Claims 7-10 on the ground of obviousness is in error.

Conclusion

It is submitted that Claims 1-18 are patentable over the prior art. Therefore, it is requested that the Board reverse the Examiner's rejections of Claims 1-18 and remand the application to the Examiner for the issuance of a Notice of Allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'David C. Jenkins', with a stylized, flowing script.

David C. Jenkins
Registration No. 42,691
Eckert Seamans Cherin & Mellott, LLC
600 Grant Street, 44th Floor
Pittsburgh, PA 15219
(412) 566-1253
Attorney for Appellants

APPENDIX 1

1. A linkage structured to operatively extend between a railroad switch machine and a pair of movable rails of a railroad switch, the linkage comprising:

a pair of first rail lugs;

a pair of second rail lugs;

one of the first rail lugs and one of the second rail lugs being structured to be operatively connected with one of the movable rails, the other of the first rail lugs and the other of the second rail lugs being structured to be operatively connected with the other of the movable rails;

an operating spread rod adjustably extending between the first rail lugs;

an operating lug structured to be connected with an operating rod of the railroad switch machine;

an operating connecting rod adjustably extending between the one of the first rail lugs and the operating lug;

a lock spread rod adjustably extending between the second rail lugs;

a lock lug structured to be connected with a lock rod of the railroad switch machine;

a lock connecting rod adjustably extending between the one of the second rail lugs and the lock lug;

a point detector lug structured to be connected with a point detector rod of the railroad switch machine;

a point detector connecting rod adjustably extending between the one of the second rail lugs and the point detector lug;

the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod each being substantially straight and at least partially threaded.

2. The linkage as set forth in Claim 1, in which

the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod each include a first threaded end and a second threaded end.

3. The linkage as set forth in Claim 2, in which

the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod each include a plurality of nuts, with at least one of the nuts of each of the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod being threadably cooperable with the first threaded end thereof, and with at least another of the nuts of each of the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod being threadably cooperable with the second threaded end thereof.

4. The linkage as set forth in Claim 3, in which
the one of the second rail lugs includes a first mounting hole extending therethrough and a second mounting hole extending therethrough;

the lock connecting rod being adjustably received through the first mounting hole;

the lock spread rod being adjustably received through the second mounting hole.

5. The linkage as set forth in Claim 1, in which
the operating spread rod and the operating connecting rod are each adjustable independently of one another with respect to the one of the first rail lugs.

6. The linkage as set forth in Claim 5, in which
the lock spread rod, the lock connecting rod, and the point detector connecting rod are each adjustable independently of one another with respect to the one of the second rail lugs.

7. A switching assembly structured to be a part of a railroad switch having a switch machine, a pair of stock rails, a pair of movable rails, and a plurality of rail ties, the switch machine including a frame, an operating rod, a lock rod, and a point detector rod, the stock rails and the movable rails being disposed on the rail ties, the rail ties generally being spaced from one another at a given pitch, the switching assembly comprising:

a first hollow tie;

a first support mounted to the first hollow tie;
a second hollow tie;
a second support mounted to the second hollow tie;
the first and second hollow ties being positionable at the given pitch
with respect to one another and being structured to be positionable at the given pitch
with respect to the rail ties;
the first and second hollow ties being structured to have the pair of
stock rails disposed thereon
the first and second supports being structured to have the switch
machine mounted thereon;
a linkage structured to operatively extend between the railroad switch
machine and the pair of movable rails of the railroad switch;
the linkage including a pair of first rail lugs, a pair of second rail lugs,
an operating spread rod, an operating lug, an operating connecting rod, a lock spread
rod, a lock lug, a lock connecting rod, a point detector lug, and a point detector
connecting rod;
one of the first rail lugs and one of the second rail lugs being structured
to be operatively connected with one of the movable rails, the other of the first rail
lugs and the other of the second rail lugs being structured to be operatively connected
with the other of the movable rails;
the operating spread rod adjustably extending between the first rail
lugs;
the operating lug being structured to be connected with the operating
rod of the railroad switch machine;
the operating connecting rod adjustably extending between the one of
the first rail lugs and the operating lug;
the lock spread rod adjustably extending between the second rail lugs;
the lock lug being structured to be connected with the lock rod of the
railroad switch machine;
the lock connecting rod adjustably extending between the one of the
second rail lugs and the lock lug;
the point detector lug being structured to be connected with the point
detector rod of the railroad switch machine;

the point detector connecting rod adjustably extending between the one of the second rail lugs and the point detector lug;

the operating connecting rod extending generally through the first hollow tie;

the lock spread rod, the lock connecting rod, and the point detector connecting rod extending generally through the second hollow tie; and

the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod each being substantially straight and at least partially threaded.

8. The switching assembly as set forth in Claim 7, in which the first and second hollow ties each include a bottom web, a top web, and a pair of side webs, with the top web and the bottom web each extending between and being connected with both of the side webs.

9. The switching assembly as set forth in Claim 8, in which the first and second hollow ties each include at least a first access hole formed in the top web, at least a portion of at least one of the first rail lugs extending through the at least first access hole formed in the first hollow tie, at least a portion of at least one of the second rail lugs extending through the at least first access hole formed in the second hollow tie.

10. The switching assembly as set forth in Claim 8, in which the first and second hollow ties each include an interior; the operating lug extending between the interior of the first hollow tie and the exterior thereof; the lock lug and the point detector lug each extending between the interior of the second hollow tie and the exterior thereof.

11. The switching assembly as set forth in Claim 7, in which the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod each include a first threaded end and a second threaded end.

12. The switching assembly as set forth in Claim 11, in which
the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod each include a plurality of nuts, with at least one of the nuts of each of the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod being threadably cooperable with the first threaded end thereof, and with at least another of the nuts of each of the operating spread rod, the operating connecting rod, the lock spread rod, the lock connecting rod, and the point detector connecting rod being threadably cooperable with the second threaded end thereof.

13. The switching assembly as set forth in Claim 12, in which
the one of the second rail lugs includes a first mounting hole extending therethrough and a second mounting hole extending therethrough;
the lock connecting rod being adjustably received through the first mounting hole;
the lock spread rod being adjustably received through the second mounting hole.

14. The switching assembly as set forth in Claim 13, in which
the lock spread rod, the lock connecting rod, and the point detector connecting rod are each adjustable independently of one another with respect to the one of the second rail lugs.

15. The switching assembly as set forth in Claim 14, in which
the operating spread rod and the operating connecting rod are each adjustable independently of one another with respect to the one of the first rail lugs.

16. The switching assembly as set forth in Claim 7, in which
the first and second hollow ties each include a first portion and a second portion connected together.

17. The switching assembly as set forth in Claim 16, in which the first and second portions are electrically insulated from one another.

18. The switching assembly as set forth in Claim 16, in which the first and second hollow ties each include a bottom web, a top web, and a pair of side webs, the top web and the bottom web each extending between and being connected with both of the side webs;

the first and second portions of each the first and second hollow ties each including an access hole formed in the top web, the first rail lugs extending through the access holes formed in the first hollow tie, the second rail lugs extending through the access holes formed in the second hollow tie.

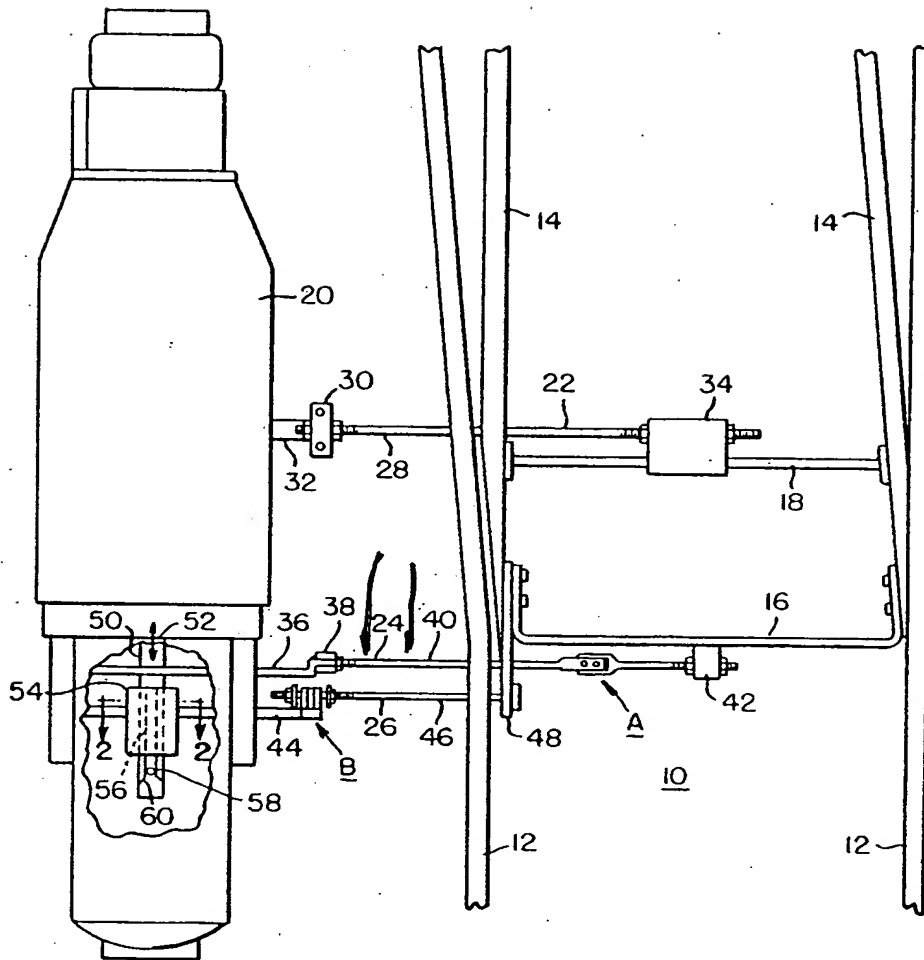


FIG. 1

Exhibit A

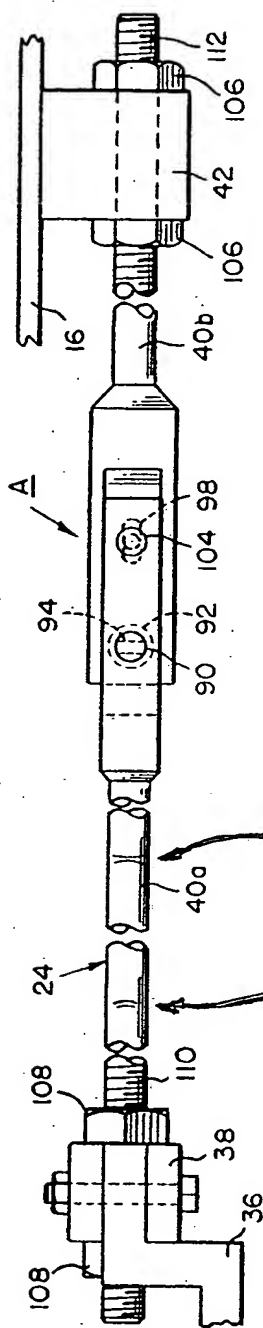


FIG. 3

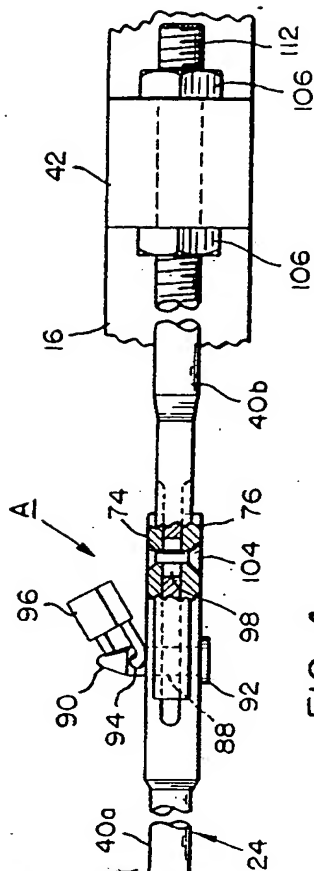


FIG. 4

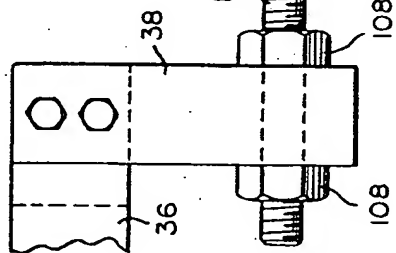


Exhibit B

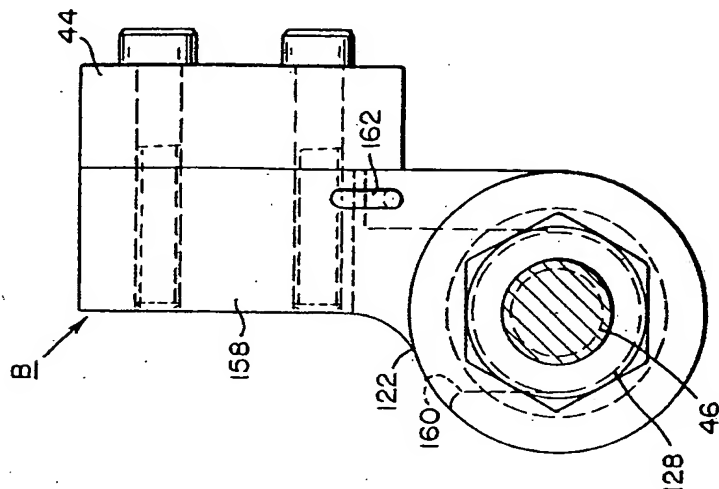


FIG. 7

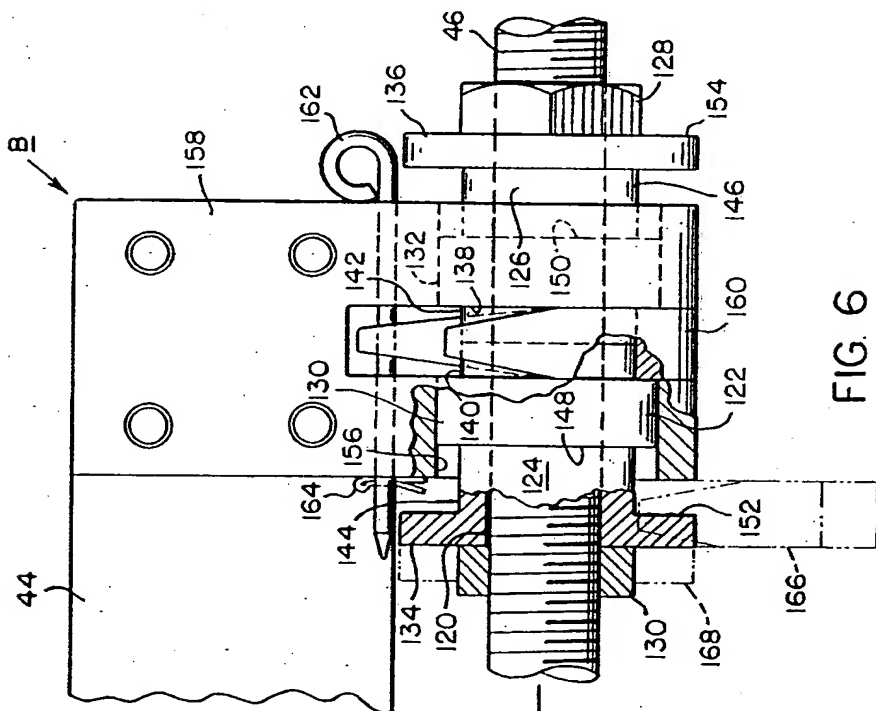


FIG. 6

Exhibit C